Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Original
Currently amended
Previously presented
Canceled
Withdrawn
New
Not entered

1. (Currently amended) A digital image processing method for exposure adjustment of in vivo images, comprising the steps of:

a) acquiring in vivo images captured by in vivo cameras;

b) detecting ~~any crease feature found~~ low brightness areas where light rays are unable to reach directly in certain anatomical structures in the in vivo images;

c) preserving a shape of the anatomical structures~~detected crease feature~~; and

d) adjusting exposure of the in vivo images in the low brightness areas due to under exposure~~with the detected crease feature preserved~~.

2. (Original) The digital image processing method claimed in claim 1, wherein the step of adjusting exposure of the in vivo images includes the steps of:

d1) thresholding the in vivo images to form a threshold image;

d2) forming a first mask, A, from the threshold image;

d3) forming a second mask, B, from the threshold image;

d4) gathering image statistics with mask A; and

d5) adjusting image exposure with mask B and the gathered statistics of mask A.

3. (Original) The digital image processing method claimed in claim 2, wherein the step of adjusting image exposure with mask B and the gathered statistics of mask A further includes the step of forming a smoothing band across an adjustment boundary, and smoothing image pixels in the smoothing band.

4. (Original) The digital image processing method claimed in claim 1, wherein detecting the crease feature, further includes the steps of:

b1) forming a skeleton image of the threshold image; and

b2) testing the skeleton image and the threshold image for one or more crease features.

5. (Original) The digital image processing method claimed in claim 2, wherein forming a second mask, B, from the threshold image, further includes the steps of:

i.) erasing corresponding pixels of the detected crease feature in the threshold image; and

ii.) erasing any remaining residual elements from the threshold image, wherein the residual elements are tiny regions.

6. (Original) The digital image processing method claimed in claim 1, wherein an image area indicated by mask B is intensified using an adjustment coefficient.

7. (Original) The digital image processing method claimed in claim 6, wherein the adjustment coefficient is determined by distinct statistics of intensity corresponding to masked areas and unmasked areas of an original image, respectively.

8. (Original) The digital image processing method claimed in claim 6, wherein the image area indicated by mask B is intensified using the adjustment coefficient, and said intensification is selected from the group consisting of a linear function, a non-linear function, and a look-up table.

9. (Original) The digital image processing method claimed in claim 6, wherein the image area indicated by mask B is monochrome or polychrome.

10. (Original) The digital image processing method claimed in claim 3, wherein forming a smoothing band further includes the steps of:

i) forming two non-intersecting lines, one on either side of a boundary line in relation to adjustment and non-adjustment areas for the in vivo image;

ii) defining a width of the smoothing band from the two non-intersecting lines; and

iii) determining intensity of in vivo image pixels on the boundary in the smoothing band from a moving average of in vivo image pixels found on both side of the boundary line;

iv) determining intensity of in vivo image pixels off the boundary in the smoothing band from a moving average of in vivo image pixels newly updated starting from the pixels on the boundary.

11. (Currently amended) A digital image processing method for exposure adjustment of in vivo images, comprising the steps of:

a) acquiring the in vivo images using an in vivo video camera system;

b) forming an examination bundlette from the in vivo images acquired with the in vivo video camera system;

c) transmitting the examination bundlette to proximal in vitro computing device(s);

d) processing the examination bundlette; and

e) adjusting exposure of the in vivo images transmitted in the examination bundlette, while simultaneously preserving any anatomical structures in low brightness areas where light rays are unable to reach directly~~crease feature~~ found in the in vivo images.

12. (Original) The digital image processing method claimed in claim 11, further comprising the step of notifying a remote site of suspected abnormalities that have been identified in the in vivo images.

13. (Original) The digital image processing method claimed in claim 12, wherein a communication channel is provided to the remote site.

14. (Original) The digital image processing method claimed in claim 11, wherein the in vivo video camera system comprises a camera having video capture capability; and an optical system for imaging an area of interest onto said camera.

15. (Original) The digital image processing method claimed in claim 11, wherein the step of forming an in vivo video camera system examination bundlette includes the steps of:

i.) forming an image packet; and

ii.) forming general metadata.

16. (Original) The digital image processing method claimed in claim 11, wherein the in vitro computing device comprises a radio receiver, an examination bundlette processor, and a wireless communication system.

17. (Original) The digital image processing method claimed in claim 11, wherein the step of processing the examination bundlette comprises the steps of:

i) decomposing the examination bundlette; and

ii) processing the in vivo images.

18. (Original) The digital image processing method claimed in claim 11, wherein the step of adjusting exposure of the in vivo images includes the steps of:

d1) thresholding the in vivo images to form a threshold image;

d2) forming a first mask, A, from the threshold image;

d3) forming a second mask, B, from the threshold image;

d4) gathering image statistics with mask A; and

d5) adjusting image exposure with mask B and the gathered statistics of mask A.

19. (Original) The digital image processing method claimed in claim 18, wherein the step of adjusting image exposure with mask B and the gathered statistics of mask A further includes the step of forming a smoothing band across an adjustment boundary, and smoothing image pixels in the smoothing band.

20. (Original) The digital image processing method claimed in claim 11, wherein detecting the crease feature, further includes the steps of:

b1) forming a skeleton image of the threshold image; and

b2) testing the skeleton image for one or more crease features.

21. (Original) The digital image processing method claimed in claim 18, wherein forming a second mask, B, from the threshold image, further includes the steps of:

i.) erasing corresponding pixels of the detected crease feature in the threshold image; and

ii.) erasing any remaining residual elements from the threshold image, wherein the residual elements are tiny regions.

22. (Original) The digital image processing method claimed in claim 11, wherein an image area indicated by mask B is intensified using an adjustment coefficient.

23. (Original) The digital image processing method claimed in claim 22, wherein the adjustment coefficient is determined by distinct statistics of intensity corresponding to masked areas and unmasked areas of an original image, respectively.

24. (Original) The digital image processing method claimed in claim 22, wherein mask B is intensified using the adjustment coefficient, and said intensification is selected from the group consisting of a linear function, a non-linear function, and a look-up table.

25. (Original) The digital image processing method claimed in claim 22, wherein mask B is intensified using the adjustment coefficient is applied to gray-scale or color images.

26. (Original) The digital image processing method claimed in claim 19, wherein forming a smoothing band further includes the steps of:

i) forming two non-intersecting lines, one on either side of a boundary line in relation to adjustment and non-adjustment areas for the in vivo image;

ii) defining a width of the smoothing band from the two non-intersecting lines; and

iii) determining intensity of in vivo image pixels on the boundary in the smoothing band from a moving average of in vivo image pixels found on both side of the boundary line;

iv) determining intensity of in vivo image pixels off the boundary in the smoothing band from a moving average of in vivo image pixels newly updated starting from the pixels on the boundary.

27. (Currently amended) An examination bundlette processing hardware system for in vivo imaging, comprising:

a) an examination bundlette processor for adjusting exposure of in vivo images while preserving any anatomical structures in low brightness areas where light rays are unable to reach directly~~detected crease feature~~ in the in vivo images;

b) a radio frequency receiver/transmitter connected to the examination bundlette processor for transmitting data packets containing the in vivo images;

c) a communication link connected to the examination bundlette processor for establishing a network link for communication the data packets;

d) a computer readable storage medium connected to the examination bundlette processor for storing the data packets;

e) a display device connected to the examination bundlette processor for providing user interface via a keyboard and/or a mouse, or a touch screen; and

f) an output device connected to the examination bundlette processor for transforming the data packets to another media, wherein the media includes print and storage.

28. (Original) The examination bundlette processing hardware system claimed in claim 27, wherein said system is incorporated within a handheld personal digital assistant, (PDA).

29. (New) A digital image processing method for exposure adjustment of in vivo images, comprising:

a) acquiring in vivo images;

b) preserving a shape of the anatomical structures in low brightness areas where light rays are unable to reach directly in the in vivo images; and

c) adjusting exposure of the in vivo images in the low brightness areas due to under exposure.